ABSTRACT

A hydrogen storage system is described that can fabricated under ambient atmospheric conditions and humidity. The hydrogen storage system includes hydrogen-absorbing alloy particles, such as AB_x-type alloys, for example $LaNi_{4.7}Al_{0.3}$, AB/A_2B-type alloys, for example Mg_2Ni, and AB_2-type alloys, and group VIII transition metal particles, such as Pd, Pt, Ni, Ru, and/or Re, that are mechanically alloyed. The mechanically alloyed particles are stable and retain their hydrogen-absorbing efficiency even after prolonged exposure to air and water. Binders and solvent can be added to produce low-viscosity inks. The hydrogen storage system can be used with fuel cells that can be microfabricated and optionally be integrated with electronic devices.